SPREAD FOOTING SECTION

- LOL
- 292 mm (11½")
- 50 mm (2") Clr
- Gutter Elev or toe of slope intersection
- 50 mm (2") Clr
- #16M @ 800 mm (#5 @ 32")
- ⓐ Bars
- For batter see Table
- Short ⓐ bars
- ⓑ Bars
- ⓒ Footing
- #16M @ 400 mm (#5 @ 16")
- 50 mm (2") Clr
- #16M (#5) Total 7
- H
- Const Jt
- Optional key
- 75 mm (3") Clr
- 50 mm (2")
- 200 mm (8") For H=3000 mm (10') or less
- 300 mm (12") for H=3600 mm (12')
- F
- W

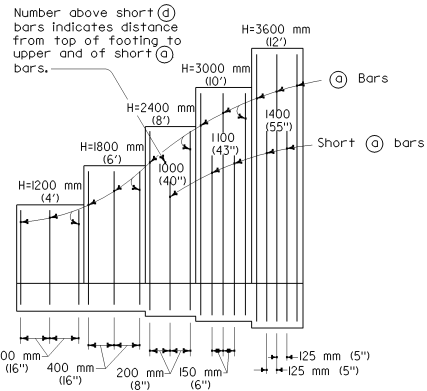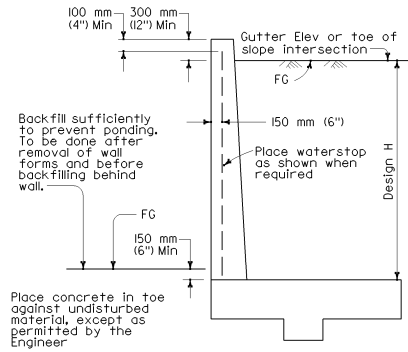### NOTE

At ⓐ and Short ⓐ bars:

H ≤ 1800 mm (6'), no splices are allowed within 500 mm (20") above the top of footing.

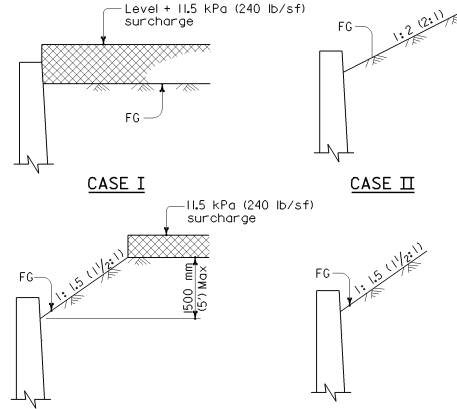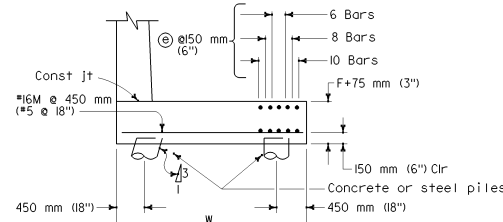H > 1800 mm (6'), no splices are allowed within H/4 above the top of footing.

DESIGN

- 100 mm (4") Min
- 300 mm (12") Min
- Gutter Elev or toe of slope intersection
- FG
- 150 mm (6")
- Place waterstop as shown when required
- FG
- 150 mm (6") Min
- Design H

Backfill sufficiently to prevent ponding. To be done after removal of wall forms and before backfilling behind wall.

Place concrete in toe against undisturbed material, except as permitted by the Engineer

For drainage notes and other details, see (B3-8)

TABLE OF REINFORCING STEEL, DIMENSIONS AND DATA

Design H	⊙1200 mm (4')	1800 mm (6')	2400 mm (8')	3000 mm (10')	3600 mm (12')
W	1250 mm (50")	1550 mm (61")	2000 mm (79")	2450 mm (96")	2900 mm (114")
F Spread Ftg	400 mm (15¾")	400 mm (15¾")	450 mm (17¾")	450 mm (17¾")	550 mm (21¾")
Batter	None	None	None	100:3	100:6
Short ⓐ Bars #M @ mm (# @ in)	16 @ 400 (5 @ 16)	16 @ 400 (5 @ 16)	16 @ 400 (5 @ 16)	16 @ 300 (5 @ 12)	16 @ 250 (5 @ 10)
Short ⓐ Bars #M @ mm (# @ in)	None	None	16 @ 400 (5 @ 16)	16 @ 300 (5 @ 12)	16 @ 250 (5 @ 10)
Short ⓑ Bars #M @ mm (# @ in)	16 @ 400 (5 @ 16)	16 @ 400 (5 @ 16)	16 @ 200 (5 @ 8)	16 @ 150 (5 @ 6)	16 @ 125 (5 @ 5)
Total ⓔ Bars	8-#19M (#6)	8-#19M (#6)	8-#19M (#6)	8-#19M (#6)	6-#19M (#6)
Toe Pressure Case I kPa (k/sf)	80 (1.6)	105 (2.2)	120 (2.5)	145 (3.0)	170 (3.5)
Toe Pressure Case II kPa (k/sf)	75 (1.5)	100 (2.1)	130 (2.7)	165 (3.4)	195 (4.1)
Toe Pressure Case III kPa (k/sf)	80 (1.6)	110 (2.3)	140 (2.9)	185 (3.8)	210 (4.4)
Toe Pressure Case IV kPa (k/sf)	95 (2.0)	155 (3.2)	200 (4.2)	255 (5.3)	310 (6.5)

DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET NO. | TOTAL SHEETS

REGISTERED CIVIL ENGINEER
Overcomer Y. Hor
No. C45803
Exp. 12-31-02
CIVIL

July 1, 2002
PLANS APPROVAL DATE

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ELEVATION

Number above short ⓓ bars indicates distance from top of footing to upper end of short ⓐ bars.

- H=3600 mm (12')
- H=3000 mm (10')
- H=2400 mm (8')
- H=1800 mm (6')
- H=1200 mm (4')
- ⓐ Bars
- Short ⓐ bars
- 1400 (55")
- 1100 (43")
- 1000 (40")
- 400 (16") | 400 (16") | 200 (8") | 150 (6") | 125 (5") | 125 (5")

DETAIL OF DESIGN LOADING CASES

CASE I
Level + 11.5 kPa (240 lb/sf) surcharge
FG

CASE II
FG 1:2 (2:1)

CASE III
11.5 kPa (240 lb/sf) surcharge
1500 mm (5') Max
FG 1:1.5 (1½:1)

CASE IV
FG 1:1.5 (1½:1)

Case I   Level +11.5 kPa (240 lb/sf) surcharge
Case II   1:2 Unlimited slope
Case III 1:1.5 (1½:1) Limited slope (1500 mm (5') max height) +11.5 kPa (240 lb/sf) surcharge
Case IV   1:1.5 (1½:1) Unlimited slope

400 kN (45 Ton) PILE FOOTING SECTION

- ⓔ @150 mm (6")
- 6 Bars
- 8 Bars
- 10 Bars
- F+75 (3")
- Const Jt
- #16M @ 450 mm (#5 @ 18")
- 150 mm (6") Clr
- Concrete or steel piles
- 450 mm (18")
- 450 mm (18")
- W

Reinforcement detailed is to be placed in addition to that shown for spread footings.

⊙ For Design H=1200 mm (4') use W=1550 mm (61") All others from table

NOTES

Design Conditions:

Design H may be exceeded by 150 mm (6") before going to the next size. Special footing design is required where foundation material is incapable of supporting toe pressure loads listed in table.

Design Data:

f_c = 10 MPa (1,450 psi) f_c' = 25 MPa (3,600 psi) f_s = 168 MPa (24,000 psi) n = 10   earth = 19 kN/m³ (120 lb/cf)

Case I - Wall design for equivalent fluid pressure = 4.2 and 5.6 kPa/m (27 and 36 lb/sf/ft).

Case II, III, IV - Wall design is based on Rankine's formula with ø = 33°42'.

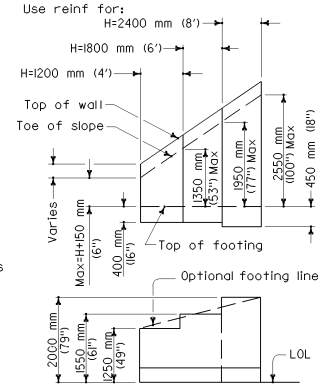### MAX PILE SPACING FOR 400 kN (45 Tons) PILES

Design H	Front Row 1:3 Batter	Back Row Vertical
1200 mm (4')	5400 mm (18')	5400 mm (18')
1800 mm (6')	3600 mm (12')	5400 mm (18')
2400 mm (8')	2700 mm (9')	5400 mm (18')
3000 mm (10')	1800 mm (6')	3600 mm (12')
3600 mm (12')	1200 mm (4')	2400 mm (8')

For actual spacing, see Wall Layout.

Pile layout does not apply to Case IV conditions.

TYPICAL LAYOUT EXAMPLE

Use reinf for:
- H=2400 mm (8')
- H=1800 mm (6')
- H=1200 mm (4')
- Top of wall
- Toe of slope
- Varies
- Max=H+150 mm (6")
- 400 mm (16")
- Top of footing
- Optional footing line
- 2000 mm (79")
- 1550 mm (61")
- 1250 mm (49")
- LOL
- 1350 mm (53") Max
- 1950 mm (77") Max
- 2550 mm (100") Max
- 450 mm (18")

For joints required, see (B0-3 3-3) & (B0-3 3-4)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

RETAINING WALL TYPE 5

These "Standard Plans for Construction of Local Streets and Roads" contain units in two systems of measurement: International System of Units (SI or "metric") and United States Standard Measures shown in the parentheses (). The measurements expressed in the two systems are not necessarily equal or interchangeable. See the "Foreword" at the beginning of this publication.

NO SCALE

B3-7

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